Arctic Getting Warmer

Oceanography

That the Arctic climate is getting warmer, at least temporarily, is indicated by studies made by the U. S. Coast Guard's expedition to the waters between Labrador and Greenland, and which has just returned after an absence of over two months. One of the purposes was to measure ocean temperatures in this area, and by this means they found that a surface layer of water 100 meters in thickness, covering an ocean area of 100,000 square miles, was five degrees warmer than normally. "Such an additional heat reservoir of tremendous proportions is bound to have far-reaching climatic effects", pointed out Commander Edward H. Smith, who commanded the expedition.

Other important conclusions reached as the result of the expedition were as follows:

The bottom water in the trough between Greenland and Labrador has a temperature of 37 degrees Fahrenheit and a saltiness of 3.49 per cent. "The observations showed", said Commander Smith, "that this water was not producd on the surface or by melting ice, as suggested in theories of Nansen and Pettersson, but indications point to a slow bottom creep from the Antarctic as the source of such waters, even off Greenland."

The coastal shelves of Greenland are much narrower than shown on present day maps, while the Labrador shelf is wider.

Three headlands were sighted by the Marion north of 60 degrees latitude, which indicate that the coast of Baffin Land, as shown on maps, is in some places as much as 20 miles in error.

The Arctic waters were extremely open this summer. About a thousands bergs in Disko Bay near the glacier front and 200 bergs stranded on the Labrador Coast near Cape Harrison, constituted practically the only ice present. The Arctic pack itself shrank to 20 miles off Cape Dier, Baffin Land.

In telling of the experiences of the expedition Commander Smith related the excitement they had in a severe gale. Another exciting experience was when the polar bear cub which they captured, and which has now been sent to the Washington zoo, escaped from his hold and tried to fight his way to freedom. The chief casualty, however, was the back of Commander Smith's coat, which the bear clawed. But the members of the crew were not entirely without recreation, for they had dances with Eskimo maidens and at Godhavn played a soccer game with an Eskimo team. The score was 28-0, in favor of the Greenlanders!

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Light Change Gives New Atomic View

Physics

A very recent discovery by a Hindu scientist, Professor C. V. Raman, that intense light of a single color is partly changed to other colors when it shines on various transparent substances "opens up a wholly new field in the study of molecular structure." This statement was made recently by Prof. R. W. Wood, of the Johns Hopkins University, in announcing that he had completely verified Professor Raman's discovery in the private laboratory of Alfred L. Loomis, at Tuxedo Park, N. Y.

According to Prof. Wood, who has just completed an investigation of the subject with improved apparatus and a more powerful spectroscope than the one employed by Raman, the effect occurs when monochromatic light, which is light of a single color, and, unlike white light, is entirely of a single wave length, shines on transparent substances such as quartz, chloroform or water. The light that is scattered from the material is mostly of the same color, or wave length, as that of the light illuminating it. The spectroscope, the instrument that analyzes light, shows, however, that part of the light is changed to wave length a little longer or a little shorter than the source. On the spectrum photographs the result is a heavy line attended on either side by narrower and fainter lines. The fainter groups of lines on one side are the same as those on the other, except that they are reversed, as if reflected in a mirror, the center line being the mirror. Professor Raman found only a single and very faint line on the high frequency side of the exciting line, but Professor Wood has found groups of lines on this side almost as strong as the groups on the other in the case of carbon tetrachloride and chloroform.

The importance of the discovery comes from the fact that the difference between the frequencies of the light given off, and those of the light which shines on the substance is precisely the same as the frequencies of the absorbtion bands of the same substance for infra-red light—light which is vibrating too slowly to be seen or even to be recorded on the photographic plate without great difficulty. By means of the Raman effect, the physicist can now study these bands of absorbtion indirectly.

Prof. Wood also pointed out that the effect was one of the most convincing proofs of the quantum theory of light, which supposes that light consists of separate pulses, or "quanta" rather than waves, as was formerly supposed. Only by the quantum theory, he thinks, can the effect be explained.

Most of his research was done with crystalline quartz, or such liquids as chloroform and carbon tetrachloride, illuminated with a mercury vapor arc lamp. He is now planning to repeat the work with a spectroscope of 40 feet focus, which will give even more convincing results than those he has now obtained.

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Whale Mistaken for Ship

Archeology

The enormous skeleton of a 5,000-year-old Greenland whale has been found at Kistinge, near Halmstad, Sweden, by workmen digging a ditch near the seashore. A monstrous jawbone, measuring about 13 feet in length, has already been unearthed. On account of its size, it was first taken by the workmen to be a part of the hull of an ancient vessel.

The bone has been examined by paleontologists, who estimate the whale to have lived at the end of the ice age, about 5,000 years ago.

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